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University of California
College of Agriculture
Agricultural Experiment Station
Berkeley, California

SEASONAL LABOR NEEDS FOR CALIFORNIA CROPS

RIVERSIDE COUNTY

Progress Report No. 33

Palo Verde Valley
Coachella Valley
Western Riverside County

Progress Report No. 33

by

R. L. Adams

September, 1936
Preliminary -- Subject to Correction

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(Farm Labor Survey -- January-June, 1936)

Progress Report #33

Seasonal Labor Needs for California Crops

Riverside County

Scope of Presentation.-- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.

2. The data are confined solely to crops, livestock needs being ignored.

3. The findings apply only to occasional or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.

4. Attention is concentrated upon workers required for hand tasks -- planting, thinning, weeding, hoeing, and harvesting -- without including teamsters, tractor drivers, irrigators, and shed packers of vegetables or fruits.

5. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.

6. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Brief Description of the Area.-- Riverside County is one of the southern counties of California, and extends eastward from a point about 40 miles east of Los Angeles, across the state to the Nevada boundary, and the Colorado River, a distance of approximately 180 miles. It has a width of about 45 miles, and is bounded on the north by San Bernardino County and on the south by San Diego and Imperial counties. On the west, it joins Orange County. For the purposes of this report, the county has been divided into three separate units -- Palo Verde Valley, Coachella Valley, and Western Riverside County. The Palo Verde Valley lies at the extreme eastern end of the county, along the Colorado River. The Coachella Valley lies in the south-central portion of the county, north of Salton Sea. Western Riverside County includes the balance of the agricultural lands which lie west of the San Jacinto and Santa Rosa mountains. Further descriptions of these districts are given in the reports on each.

The county contains a total of 4,622,720 acres of which 345,501 acres are classed as available for crops by the 1935 Census. This is further classified as follows by the Census for the crop year 1934:

	Acreage
Crop land harvested	182,086
Crop failure	36,812
Crop land idle or fallow	102,233
Plowable pasture	24,370
Total land available for crops	345,501

(Farm Labor Survey -- January-June, 1936)

Progress Report #23

Seasonal Labor Needs for California Crops

Riverside County

Scope of Presentation.-- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.

2. The data are confined solely to crops, livestock needs being ignored.

3. The findings apply only to seasonal or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.

4. Attention is concentrated upon workers required for hand tasks -- planting, thinning, weeding, hoeing, and harvesting -- without including tractors, tractor drivers, irrigators, and wheat packers of vegetables or fruits.

5. The presentation includes the so-called migratory, transient or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.

6. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems likely to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

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	Acres
Crop land harvested	182,086
Crop failure	36,812
Crop land idle or fallow	102,833
Plowable pasture	24,370
Total land available for crops	345,501

Findings of Seasonal Labor Needs.-- Details and summaries of seasonal labor requirements of Riverside County, are presented separately for Palo Verde, Coachella, and Western Riverside counties, as table 3. The "size of task" are figures drawn from table 1 in terms of either acreage or output in tons, crates, boxes or whatever unit is commonly used. The "output per man-day" is an average figure for the entire acreage or output. If the work is of a nature that requires a crew, different members of which perform different tasks (such as pulling, sorting, bunching, and tying carrots, etc.), then the average shown is per man based on the entire crew. Length of day is 9 hours, unless otherwise stated. Wide variations in output occur between farm and farm, field and field, season and season, because of differences in soil types, climatic conditions, weeds, yields and other factors influencing the amount of work that a man can do in a given day. Moreover, the basis of output is a mature, experienced male worker, without reference to the use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring the use of seasonal workers. The column headed "available days" reflects (a) limitations set from the period within which the work must be performed because of the nature of the task, such as thinning, weeding, fruit picking, etc., and (b) the available days as determined by weather conditions, inclement weather reducing the number of days when a required task can be performed. The "required number of individuals" is given in terms of workers as noted above in connection with "output per man-day."

It is probable that the estimated number of workers required, as recorded in table 3, will often be too low, for the reason that "peaks" frequently occur, during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, although the total amount of labor in man-days would not be changed materially.

TABLE 1.
Basis for Calculating Seasonal Labor Requirements -- Riverside County, other than Coachella and Palo Verde Valleys

Crop	Acreage*	Production*
Field crops:		
Alfalfa	18,945	95,890 tons (90% baled = 86,300 tons)
Alfalfa seed	1,850	
Beans (dry)	1,271	15,700 sacks
Sugar beets	121	1,417 tons
Corn	280	95 tons grain
Corn (Indian) †	457	7,650 tons ensilage
Grain	49,003	
Hay (grain hay) oats or barley	13,000	13,610 tons
Milo Maize †	158	48 tons
Onions	225	66,750 sacks of 100 pounds
Potatoes	2,149	257,836 sacks of 100 pounds
Seed (Sugar beet)	410	650 tons
Seed (Onion)†	40	8,640 pounds
Truck crops:		
Asparagus	97	4,767 crates
Carrots†	55	

(Table 1 continued on next page.)

Findings of Seasonal Labor Needs.-- Details and summarizing of seasonal labor requirements of Riverside County, are presented separately for Palo Verde, Coachella, and Western Riverside counties, as table 5. The "size of task" are figures drawn from table 1 in terms of either acreage or output in tons, crates, boxes or whatever unit is convenient. The "output per man-day" is an average figure for the entire acreage or output. If the work is of a nature that requires a crew, different members of which perform different tasks (such as pulling, sorting, bunching, and tying carrots, etc.), then the average shown is per man based on the entire crew. Length of day is 8 hours, unless otherwise stated. Wide variations in output occur between farm and farm, field and field, acreage and season, because of differences in soil types, climatic conditions, water, yields and other factors influencing the amount of work that a man can do in a given day. Moreover, the basis of output is a mature, experienced male worker, without reference to the use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring the use of seasonal workers. The column headed "available days" reflects (a) limitations set from the period within which the work must be performed because of the nature of the task, such as thinning, weeding, fruit picking, etc., and (b) the available days as determined by weather conditions, including weather reducing the number of days when a required task can be performed. The "required number of individuals" is given in terms of workers as noted above in connection with "output per man-day".

It is probable that the estimated number of workers required, as recorded in table 5, will often be too low, for the reason that "peaks" frequently occur during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, although the total amount of labor in man-days would not be changed materially.

TABLE 1.

Basis for Calculating Seasonal Labor Requirements -- Riverside County, other than Coachella and Palo Verde Valleys

Crop	Acreage*	Production*
Field crops:		
Alfalfa	18,945	95,690 tons (30% yield = 86,300 tons)
Alfalfa seed	1,880	
Beans (dry)	1,271	16,700 sacks
Sugar beets	121	1,417 tons
Corn	280	95 tons grain
Corn (Indian) †	457	7,880 tons ensilage
Grain	49,003	
Hay (grain hay) oats or barley	13,000	16,610 tons
Milo Maize †	188	48 tons
Onions	285	66,750 sacks of 100 pounds
Potatoes	2,148	297,838 sacks of 100 pounds
Seed (Sugar beet)	410	850 tons
Seed (Onion)†	40	8,640 pounds
Truck crops:		
Asparagus	97	4,767 crates
Carrots†	55	

(Table 1 continued on next page.)

Table 1 continued.

Crop	Acreage*	Production*
Truck crops: (cont'd)		
Lettuce †	50	
Melons, cantaloupes	197	442 tons
Casaba	40	150 tons
Japanese melons	53	350 tons
Persian	170	1,300 tons
watermelons	966 ‡	6,792 tons
Potatoes, sweet †	45	302 tons
Spinach	250	20 tons ϕ
Squash †	384	2,580 tons
Tomatoes	1,192	6,299 tons
Vegetables (mixed)	321	
Strawberries	31	5,150 crates
Other berries	40	1,600 crates
Orchard crops:		
Almonds	1,053	41 tons ¶
Apples †	180	160 tons
Apricots	4,422	3,148 tons (dry weight) 21,069
		5,329 tons (green weight) green tons
Avocados †	55	43 tons
Cherries	840	750 tons
Citrus, lemons	3,486	519,654 packed boxes
miscellaneous citrus	612	131,638 packed boxes
Navels	13,053	2,080,884 packed boxes
		308,580 field boxes
Pomelo	717	(194,291) field boxes
Valencias	3,865	610,296 field boxes
Figs †	132	77 tons
Grapes, wine	4,997 ‖	1,467 tons
Olives	888	176 tons
Peaches, cling	1,109	2,674 tons
free	1,038	1,035 tons
Pears †	85	45 tons
Pecans †	14	--
Persimmons †	75	62 tons
Plums	81	246 tons
		2,010 tons (dry weight) 5,435
Prunes	600	410 tons (green) green tons
Walnuts	5,198	2,274

* Acreage and production figures are from office of A. E. Bottel, Agricultural Commissioner.

† Use of seasonal labor inconsequential and hence ignored.

‡ About 50 per cent of watermelon acreage estimated protected by paper covers.

ϕ Spinach is a new crop in this district. Production estimated to be about 250 tons normally.

¶ Normal production of almonds is about 200 tons. 1935 crop was very light due to frost injury.

‖ Only about 1,500 acres of vineyard actually in good production. Balance is more or less neglected.

Table I continued.

Crop	Acreage*	Production*
Truck crops: (cont'd)		
Lettuce †	50	442 tons
Melons, cantaloupes	197	150 tons
Casaba	40	350 tons
Japanese melons	52	1,300 tons
Persian	170	6,792 tons
watermelons	966 ♦	302 tons
Potatoes, sweet †	45	20 tons ♢
Spinach	250	2,580 tons
Squash †	364	6,299 tons
Tomatoes	1,192	
Vegetables (mixed)	321	5,150 crates
Strawberries	31	1,600 crates
Other berries	40	
Orchard crops:		
Almonds	1,052	41 tons ♥
Apples †	180	160 tons
Apricots	4,422	5,148 tons (dry weight) 22,000
		5,329 tons (green) from
		(weight) tons
Avocados †	58	42 tons
Cherries	840	750 tons
Citrus, lemons	3,486	519,654 packed boxes
miscellaneous		
citrus	612	131,658 packed boxes
Navels	13,052	2,080,884 packed boxes
		306,580 field boxes
Pomelo	717	(194,201) field boxes
Valencias	3,865	610,298 field boxes
Figs †	132	77 tons
Grapes, wine	2,997 ‖	1,467 tons
Olives	858	176 tons
Peaches, cling	1,102	2,574 tons
free	1,038	1,035 tons
Pears †	86	45 tons
Pecans †	14	—
Persimmons †	75	62 tons
Plums	81	248 tons
		2,010 tons (dry weight) 5,425
Prunes	600	410 tons (green) green
		tons
Walnuts	5,198	2,174

* Acreage and production figures are from office of A. E. Bottel, Agricultural Commissioner.

† Use of commercial fiber industry-potential and bumps increased.

♦ About 50 per cent of watermelon acreage estimated protected by paper covers.

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♥ Normal production of almonds is about 200 tons. 1955 crop was very light due to frost injury.

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Operations Requiring Use of Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal or occasional labor for the various crops raised in Riverside County, exclusive of the Coachella and Palo Verde valleys, are indicated in table 2. This tabulation does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops -- Riverside County, exclusive of Coachella and Palo Verde Valleys

Crop	Operation	Time of need
Field crops:		
Alfalfa hay	Mowing (50 per cent by seasonal labor)	April--three-fourths of acreage May--three-fourths of acreage
	Raking (50 per cent by seasonal labor)	June--all acreage July--all acreage August--all acreage
	Shocking (80 per cent by seasonal labor)	Sept.--three-fourths of acreage Oct.--three-fourths of acreage
	Hauling and baling (80 per cent by seasonal labor)	April--12 per cent of tonnage baled May--15 per cent of tonnage baled June--17 per cent of tonnage baled July--17 per cent of tonnage baled Aug.--17 per cent of tonnage baled Sept.--12 per cent of tonnage baled Oct.--10 per cent of tonnage baled
Alfalfa seed	Threshing	Sept.--15-30 50 per cent of crop Oct.--1-15 50 per cent of crop
Beans (mostly blackeye)	Hoeing	July--all acreage
	Bunching after cutter	Sept.--50 per cent of acreage
	(by hand with fork)	Oct.--50 per cent of acreage
	Threshing (by stationary) (60 per cent by seasonal labor)	October--all crop
Sugar beets	Thinning Hoeing Topping and loading	April May September
Grain, harvesting	Harvesting	June--50 per cent of crop July--50 per cent of crop

(Table continued on next page)

Operations Requiring Use of Seasonal Labor and Times of Need.--Farm operations requiring the use of seasonal or occasional labor for the various crops raised in Riverside County, exclusive of the Coachella and Palo Verde valleys, are indicated in table 2. This tabulation does not include the employing of land workers needed to wash, pack, and prepare various commodities for shipping and marketing.

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Operations Requiring Use of Seasonal Labor and Times of Needs by Crops -- Riverside County, exclusive of Coachella and Palo Verde Valleys

Crop	Operation	Time of need
Field crops:		
Alfalfa hay	Mowing (50 per cent by seasonal labor)	April--three-fourths of acreage May--three-fourths of acreage June--all acreage July--all acreage August--all acreage
	Raking (50 per cent by seasonal labor)	Sept.--three-fourths of acreage Oct.--three-fourths of acreage
	Shocking (50 per cent by seasonal labor)	
	Hauling and baling (50 per cent by seasonal labor)	April--12 per cent of tonnage baled May--15 per cent of tonnage baled June--17 per cent of tonnage baled July--17 per cent of tonnage baled Aug.--17 per cent of tonnage baled Sept.--12 per cent of tonnage baled Oct.--10 per cent of tonnage baled
Alfalfa seed	Threshing	Sept.--15-30 50 per cent of crop Oct.--1-15 50 per cent of crop
Beans (mostly blackeye)	Hoeing	July--all acreage
	Bunching after cutter	Sept.--50 per cent of acreage
	(by hand with fork)	Oct.--50 per cent of acreage
	Threshing (by stationary) (50 per cent by seasonal labor)	October--all crop
Sugar beets	Thinning Hoeing Topping and loading	April May September
Grain, harvesting	Harvesting	June--50 per cent of crop July--50 per cent of crop

(Table continued on next page)

Table 2 continued.

Crop	Operation	Time of need
Field crops (cont'd)		
Grain, harvesting (cont'd)	Baling straw	August--all acreage
Grain hay	Mowing (75 per cent by seasonal labor)	May--one-third of acreage June--two-thirds of acreage
	Raking (75 per cent by seasonal labor)	May--one-third of acreage June--two-thirds of acreage
	Bunching (75 per cent by seasonal labor)	May--one-fourth of acreage June--three-fourths of acreage
	Baling	June-15-30 50 per cent of crop July-1-15 50 per cent of crop
Onions	Hand cultivating (3 times)	March) 15 per cent of acreage April) each month
	Hand weeding (once)	March--all acres
	Thinning	March--20 per cent of acreage April--80 per cent of acreage
	Picking up, grading, and sacking	Sept.--two-thirds of crop Oct.--one-third of crop
Potatoes	Cutting seed, spring crop (80 per cent of acreage)	Feb.-15-28 33 per cent of spring seed Mar.-1-31 66 per cent of spring seed
	fall crop (20 per cent of acreage.)	July-20-30 33 per cent of fall seed Aug.-1-20 66 per cent of fall seed
	Picking up and sacking	June-20-30 5 per cent of spring crop July-1-31 90 per cent of spring crop August--5 per cent of spring crop Nov.--50 per cent of fall crop Dec.-1-31 50 per cent of fall crop
	Grading on tables	Same time as picking up
Sugar beet seed	Hoeing	Oct.-15-31 50 per cent of acreage Nov.-1-15 50 per cent of acreage
	Clearing away by hand (after mowers)	July

(Table continued on next page)

Table continued

Crop	Operation	Time of need
Field crops (cont'd)		
Sugar beet seed (cont'd)	Threshing	July—50 per cent of crop Aug.--50 per cent of crop
Vegetable crops:		
Asparagus	Cutting and crating	
Melons, cantaloupes	Thinning and hoeing (once) (50 per cent by seasonal labor)	April--all acreage
Jap. melons	Replanting (50 per cent by seasonal labor)	April—all acreage
	Hoeing (three times) (50 per cent by seasonal labor)	May--twice June—once
	Picking cantaloupes and Japanese melons	August--one-half of crop Sept.—one-half of crop
	Picking Persians	September, October
watermelons	Planting (75 per cent by seasonal labor)	March 1-30--50 per cent of acreage April 1-20--50 per cent of acreage
	Capping	March per cent of acreage
	Hoeing and thinning (75 per cent by seasonal labor)	April—all acres covered May--all acres not covered
	Hoeing (75 per cent by seasonal labor)	May—all acres covered June—all acres not covered
	Picking	July—10 per cent of crop Aug.—50 per cent of crop Sept.--35 per cent of crop Oct.—5 per cent of crop
	Loading and hauling (66 per cent by seasonal labor)	same as picking
Spinach	Hoeing (twice)	December--all acreage January--all acreage
	Cut by hand with special forks	first cutting {Dec. 15-31—20 per cent of crop Jan. 1-31--45 per cent of crop

(Table continued on next page)

Field crops (concld.)		
Sugar beet seed (concld.)		
	Thinning and hoeing (men) (50 per cent by reserve labor)	
	Harvesting (50 per cent by reserve labor)	
	Hoeing (three times) (50 per cent by reserve)	
	Picking contractors and farmers and so	
	Planting (75 per cent by	

Table 2 continued.

Crop	Operation	Time of need
Vegetable crops (cont'd)		
Spinach	Cut by hand with special forks (cont'd)	second cutting (Feb. 1-28--14 per cent of crop (Mar. 1-31--14 per cent of crop (Apr. 1-15--7 per cent of crop
Tomatoes	Transplanting to field	May 1-15--all acreage
	Replanting	May--all acreage
	Hoeing (twice)	June, July--all acres once
	Dusting (three times)	May, June, July--all acreage
	Picking	Aug.--15 per cent of crop Sept.--40 per cent of crop Oct.--30 per cent of crop Nov.--15 per cent of crop
Strawberries	Picking	March--10 per cent of crop April--35 per cent of crop May--30 per cent of crop June--25 per cent of crop
Other berries	Picking	May--5 per cent of crop June--78 per cent of crop July--16 per cent of crop
Orchard crops:		
Almonds	Knocking	July 20-30--10 per cent of crop Aug. 1-31--60 per cent of crop Sept. 1-31--30 per cent of crop
	Hulling by hand	July 20-30--10 per cent of crop Aug. 1-31--60 per cent of crop Sept. 1-31--30 per cent of crop
Apricots	Pruning (50 per cent by seasonal labor)	Nov., Dec., Jan.,--one-third of acreage each month
	Spraying	
	Thinning (with poles)	April 15-30--25 per cent of acreage
	(Heavy in 1935 -- none in 1936)	May 1-15--75 per cent of acreage
	Picking	June 20-30--10 per cent of crop July 1-31--90 per cent of crop
	Washing trays and repairing	June 10-20--all
	Cutting for drying	July--all

(Table continued on next page)

Table 2 continued.

Crop	Operation	Time of need
Orchard crops (cont'd)		
Apricots (cont'd)	Spreading trays, handling boxes and scraping trays	July
Cherries	Picking	May 20-30—10 per cent of crop June 1-15—60 per cent of crop June 15-30—30 per cent of crop
	Sorting and loose packing	May 20-30—10 per cent of crop June 1-15—60 per cent of crop June 15-30—30 per cent of crop
Citrus, lemons	Picking *	Nov.—123,650 field boxes Dec.—162,140 field boxes Jan.—205,310 field boxes Feb.—150,336 field boxes Mar.—143,375 field boxes Apr.—191,835 field boxes May—83,955 field boxes June—43,500 field boxes July—20,120 field boxes Aug.—11,310 field boxes Sept.—8,091 field boxes Oct.—30,015 field boxes
oranges (navels and Valencias) and miscellaneous citrus fruits	Picking †	Nov.—1.2 per cent of crop Dec.—4.2 per cent of crop Jan.—13.0 per cent of crop Feb.—16.5 per cent of crop Mar.—19.8 per cent of crop Apr.—18.1 per cent of crop May—6.5 per cent of crop June—3.2 per cent of crop July—5.4 per cent of crop Aug.—3.3 per cent of crop Sept.—4.5 per cent of crop Oct.—4.4 per cent of crop
grapefruit	Picking ‡	April—8 per cent of crop May—17 per cent of crop June—27 per cent of crop July—25 per cent of crop Aug.—14 per cent of crop Balance scattering and inconsequential
Grapes	Pruning	Dec. 15-31—20 per cent of acreage Jan. 1-30—40 per cent of acreage Feb. 1-28—40 per cent of acreage

(Table continued on next page)

Table 2 continued

Crop	Operation	Time of Need
Orchard crops (cont'd)		
Grapes (cont'd)	Picking	Aug. 15-30 -- 5 per cent of crop Sept. -- 30 per cent of crop Oct. -- 50 per cent of crop Nov. -- 15 per cent of crop
Olives	Picking	Nov. 1-30 -- 50 per cent of crop Dec. 1-31 -- 50 per cent of crop
Peaches, cling	Pruning (50 per cent by seasonal labor)	Jan.) 50 per cent of acreage Feb.) each month
	Thinning	May
	Picking	Aug. 15-31 -- 45 per cent of crop Sept. 1-20 -- 55 per cent of crop
freestone	Pruning (50 per cent by seasonal labor)	Nov. 15-30 -- one-sixth of acreage Dec. 1-31 -- one-third of acreage Jan. 1-31 -- one-third of acreage Feb. 1-15 -- one-sixth of acreage
	Thinning	May -- all acreage
	Picking	July -- 10 per cent of crop Aug. -- 50 per cent of crop Sept. -- 30 per cent of crop Oct. -- 10 per cent of crop
	Sorting and packing	(same time as picking)
Plums	Picking	July -- 75 per cent of crop Aug. -- 25 per cent of crop
Prunes	Picking up	Sept. 10-30 -- 60 per cent of crop Oct. 1-15 -- 40 per cent of crop
	Dipping and drying	(same time as picking up)
Walnuts	Harvesting and hulling by hand	Sept. -- 50 per cent of crop Oct. -- 50 per cent of crop

* Distribution of lemon picking by months based on lemon "pick" for 1935 of the Queen Colony Fruit Exchange, Corona, which is estimated to be about 80 per cent of the county production.

† Orange picking by months distributed according to percentage shipped monthly during 1935. Field boxes estimated on basis of 750 field boxes of 48 lbs. for every car of 462 boxes of 80 pounds.

‡ Grapefruit picking by months is distributed according to percentage shipped each month in 1935. Field boxes estimated on basis of 750 field boxes for every car of 462 packed boxes.

TABLE 3

Seasonal Labor Needs -- Riverside County, excluding Palo Verde and Coachella Valleys -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
January	Spinach: hoeing	250 acres	1 acre	250	21	12
	cutting with special forks by hand	112 tons	1,000 lbs in 6 hours	224 (of 6 hrs)	9	25 (for 9 days)
	Apricots: pruning	1,474 acres	0.2 acre	3,685+	21	176
	Citrus, lemons; picking	205,310 field boxes	23 boxes	8,927	20	447
	oranges: picking	778,700 field boxes	60 boxes	12,979	20	649
	Grapes: pruning	600 acres	0.75 acre	800	21	38
	Peaches, cling ; pruning	555 acres	0.33 acre	833+	21	40
	free ; pruning	346 acres	0.33 acre	519+	21	25
	Totals			28,217	21	1,344 man-months
February	Potatoes: cutting seed (12 sacks per acre)	6,876 sacks	20 sacks	344	11	31 (from 15th to 28th)
	Spinach; cutting (second cutting)	35 tons	1,000 pounds in 6 hours	70 (of 6 hrs)	3	25 (for 3 days)
	Citrus, lemons: picking	150,336 field boxes	22 boxes	6,834	22	311
	oranges: picking	988,350 field boxes	60 boxes	16,473	22	749
	Grapes: pruning	600 acres	0.75 acre	800	23	35

(Table continued on next page)

TABLE C

Seasonal Labor Force -- Hibernia Gardens, excluding Fruit Varieties and Concordia Vineyards -- [illegible] and Tulare

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Summary	Stubbing, mowing	[illegible]	1 acre	[illegible]	[illegible]	[illegible]
	Tracks by hand	112 tons	1,[illegible] in 3 hours	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	24 acres	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	40 acres	[illegible]	[illegible]	[illegible]
	Cheapest pruning	600 acres	6 to [illegible] acre	[illegible]	[illegible]	[illegible]
	Peaches, cling ; pruning	500 acres	0.25 acre	[illegible]	[illegible]	[illegible]
	Tree , pruning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]					
[illegible]	[illegible] [illegible] seeding seed (12 tons per acre)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spinach, cutting (second cutting)	[illegible]	1,[illegible] acres in 6 hours	[illegible]	[illegible]	[illegible]
	Olives, [illegible] pruning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	50 trees	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
February (cont'd)	Peaches, cling : pruning	555 acres	0.33 acre	833†	23	37
	free ; pruning	173 acres	0.33 acre	260†	12	22 (from 1st to 15th)
	Totals			25,612	23	1,114 man-months
March	Onions: hand cultivation	225 acres	1.5 acre	225	25	9
	hand weeding	225 acres	1.0 acre	225	25	9
	thinning	45 acres	0.25 acre	180	25	8
	Potatoes; cutting seed (12 sacks per acre)	13,752 sacks	20 sacks	688	25	28
	Watermelons: planting with hoe	483 acres	5 acres	73†	25	3
	putting on paper caps	483 acres	3 acres	161	25	7
	Spinach: cutting (second cutting)	35 tons	1,000 pounds in 6 hours	70	3	25 (for 3 days)
	Strawberries: picking	(515 crates) (31 acres)	1½ crates	344 (of 4 hrs)	12	29† (from 15th to 31st)
	Citrus, lemons; picking	143,375 field boxes	31 boxes	4,625	23	201
	oranges; picking	1,086,020 field boxes	60 boxes	18,100	23	787
	Totals			24,691	25	988 man-months
April	Alfalfa hay: mowing	14,209 acres	10 acres	710†	25	29
	raking	14,209 acres	20 acres	355†	25	15
	shocking	14,209 acres	2½ acres in 5 hours	4,547 (of 5 hrs.)†	25	182
	hauling and baling	10,356 tons	3 tons	2,762†	25	111

(Table continued on next page)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
April (cont'd)	Sugar beets: thinning	121 acres	0.5 acre	242	25	10
	Onions: hand cultivating	225 acres	1.5 acre	225	25	9
	thinning	180 acres	0.25 acre	760	25	31
	Melons: cantaloupes and Japanes melons, thinning and hoeing once	250 acres	0.75 acre	166†	25	7
	replanting	250 acres	4 hours per acre	55†	25	3
	Watermelons: planting with hoe	483 acres	5 acres	74†	17	5 (from 1st to 20th)
	hoeing and thinning "covered" acreage	483 acres	1 acre	362†	25	15
	Spinach: cutting (second cutting)	18 tons	1,000 pounds in 6 hours	36 (of 6 hrs.)	2	18 (for 2 days)
	Strawberries: picking	1,800 crates 31 acres	1½ crates	1,200 (of 4 hrs.)	25	48‡
	Apricots: thinning (with poles)	1,105	0.5 acre	2,210	12	184 (from 15th to 30th)
	Citrus, lemons: picking	191,835 field boxes	28 boxes	6,851	23	298
	oranges: picking	1,084,090 field boxes	60 boxes	18,068	23	786¶
	grapefruit: picking	24,686 field boxes	90 boxes	275	23	12
	Totals			38,898	25	1,556 man-months
May	Alfalfa hay: mowing	14,209 acres	10 acres	711†	26	28
	raking	14,209 acres	20 acres	356†	26	14
	shocking	14,209 acres	2½ acres in 5 hours	4,547† (of 5 hrs.)	26	175
	hauling and baling	12,945 tons	3 tons	3,452†	26	133

(Table continued on next page)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
May (cont'd)	Sugar beets: hoeing	121 acres	1.0 acre	121	12	10 (for 12 days)
	Grain hay: mowing	4,400 acres	10 acres	330†	26	13
	raking	4,400 acres	20 acres	165†	26	7
	bunching	3,250 acres	20 acres	122†	26	5
	Melons, cantaloupes and Japanese melons: hoeing twice	500 acres	2 acres	125†	26	5
	watermelons: hoeing and thinning (all uncovered)	483 acres	3 acres	120†	26	5
	hoeing, (all covered acres)	483 acres	3 acres	120†	26	5
	Tomatoes: transplanting to field	1,192 acres	1 acre	1,192	12	100 (from 1st to 15th)
	dusting	1,192 acres	4 acres (in 6 hours)	298 (of 6 hrs.)	26	12
	replanting	1,192 acres	10 acres	119	12	10 (from 15th to 30th)
	Strawberries: picking	1,545 crates 31 acres	1½ crates	1,030 (of 4 hrs.)	26	40 ‡
	Apricots: thinning with poles §	3,315 acres	0.5 acre	6,630	13	510 (from 1st to 15th)
	Cherries: picking	75 tons	200 pounds	750	10	75 (from 20th to 30th)
	sorting and loose packing	75 tons	1,000 pounds	150	10	15
	Citrus, lemons: picking	83,955 field boxes	17 boxes	4,939	24	206

(Table continued on next page)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
May (cont'd)	Citrus, oranges: picking	389,350 field boxes	50 boxes	7,787	24	325
	grapefruit: picking	52,458 field boxes	90 boxes	583	24	25
	Peaches: thinning	2,147 acres	0.25 acre	8,588	26	331
	Totals			42,235	26	1,625 man-months
June	Alfalfa: mowing	18,945 acres	10 acres	947 †	26	37
	raking	18,945 acres	20 acres	474 †	26	19
	shocking	18,945 acres	2½ acres in 5 hours	6,064 † (of 5 hrs.)	26	234
	hauling and baling	14,670 tons	3 tons	3,912 †	26	151
	Grain: harvesting (with combine)	24,500 acres	6 acres	2,042 †	26	78
	Grain hay: mowing	8,600 acres	10 acres	645 †	13	50 (for 13 days)
	raking	8,600 acres	20 acres	323 †	15	22 (for 15 days)
	bunching	9,750 acres	20 acres	366 †	20	19 (for 19 days)
	baling	6,800 tons	4 tons	1,700	13	131 (from 15th to 30th)
	Potatoes: picking up and sacking	10,300 sacks	70 sacks	147	10	15 (from 20th to 30th)
	grading (mostly on tables)	10,300 sacks	100 sacks	103	10	11 (from 20th to 30th)
	Melons, cantaloupes and Japanese: hoeing	250 acres	2 acres	63 †	26	3
	watermelons: hoeing (all acres not covered)	483 acres	4 acres	90 †	26	4
	Tomatoes: hoeing	1,192 acres	1.5 acre	795	26	31

(Table continued on next page)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
June (cont'd)	Tomatoes: dusting	1,192 acres	2.5 acres in 6 hours	477 (of 6 hrs.)	26	19
	Youngberries, etc.; picking	40 acres	200-½ pt. baskets		26	//
	Strawberries: picking	1,290 crates 31 acres	1½ crates	860	26	33 ‡
	Apricots: picking	2,106 tons	2,000 pounds	2,106	10	211 (from 20th to 30th)
	washing and repairing trays	98,400 trays	150 trays	656	10	66 (from 10th to 20th)
	Cherries: picking	450 tons	200 pounds	4,500	15	300** (from 1st to 15th)
	picking	225 tons	200 pounds	2,250	15	150 (from 15th to 30th)
	Citrus, lemons: picking	43,500 field boxes	10 boxes	4,350	24	182
	oranges: picking	191,680 field boxes	50 boxes	3,834	24	160
	grapefruit: picking	81,317 field boxes	90 boxes	904	24	38
	Totals			37,608	26	1,447 man-months
July	Alfalfa hay: mowing	18,945 acres	10 acres	947 †	26	37
	raking	18,945 acres	20 acres	474 †	26	19
	shocking	18,945 acres	2½ acres in 5 hours	6,064 † (of 5 hrs.)	26	234
	hauling and baling	14,670 tons	3 tons	3,912 †	26	151
	Beans: hoeing	1,271 acres	1.0 acre	1,271	26	49
	Grain: harvesting (by combine)	24,500 acres	6.0 acres	2,042	26	78
	Grain hay: baling	6,800 tons	4 tons	1,700	13	131 (from 1st to 15th)
	Sugar beet seed: clearing swath after mowers	410 acres	0.33 acre	1,230	21	60 (for 21 days)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
July (cont'd)	Sugar beets: threshing	325 tons	0.75 ton	467	12	40 (from 15th to 31st)
	Melons, watermelons: picking	680 tons	10 tons in 5 hours	68 (of 5 hrs)	13	6 (from 15th to 31st)
	loading and hauling	680 tons	5 tons	90 †	13	7
	Potatoes: cutting seed for fall crop	1,728 sacks	20 sacks	87	10	9 (from 20th to 30th)
	picking up and sacking	185,668 sacks	70 sacks	2,653	26	102
	grading on tables	185,668 sacks	100 sacks	1,857	26	72
	Tomatoes: hoeing, once	1,192 acres	2.0 acre	596	26	23
	dusting	1,192 acres	1.0 in 6 hours	1,192 (of 6 hrs.)	26	46
	Youngberries, etc.: picking	40 acres	200-½ pt. baskets		26	‖
	Almonds: knocking	20 tons	225 pounds	178	10	18 (from 20th to 30th)
	hulling by hand	20 tons	65 pounds	616	10	62 (from 20th to 30th)
	Apricots: picking	18,962 tons	2,000 pounds	18,962	26	730
	cutting for drying (green weight)	15,740 tons	600 pounds	52,467	26	2,018
	other dry yard labor	15,740 tons	11 hours per green ton ††	17,314	26	666
	Citrus, lemons: picking	20,120 field boxes	10 boxes	2,012	24	84
	oranges: picking	323,460 field boxes	50 boxes	6,469	24	270

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
July (cont'd)	Citrus, grapefruit; picking	77,145 field boxes	90 boxes	858	24	36
	Peaches, (freestone); picking	103 tons	1,500 pounds in 7 hours	138 (of 7 hrs.)	6	23 (for 6 days)
	sorting and packing	103 tons	2,300 pounds	90	6	15 (for 6 days)
	Plums: picking	185 tons	1,000 pounds	370	26	15
	Totals			124,124	26	4,774 man-months
August	Alfalfa hay; mowing	18,945 acres	10 acres	947 †	25	38
	raking	18,945 acres	20 acres	474 †	25	19
	shocking by hand	18,945 acres	2½ acres in 5 hours.	6,064 (of 5 hrs.) †	25	243
	hauling and baling	14,670 tons	3 tons	3,912 †	25	157
	Grain: baling straw		3 tons		25	
	Potatoes: cutting seed for fall crop	3,432 sacks	20 sacks	172	18	10 (from 1st to 20th)
	picking up and sacking	10,300 sacks	70 sacks	147	6	25 (for 1st week)
	grading	10,300 sacks	100 sacks	103	6	17 (for 1st week)
	Sugar beet seed: threshing	325 tons	0.75 ton	467	24	20
	Melons, cantaloupes and Jap melons: picking	396 tons	1 ton	396	25	16
	watermelons: picking	3,396 tons	10 tons in 5 hours	340 (of 5 hrs.)	25	14
	loading and hauling	3,396 tons	5 tons	454 †	25	18
	Tomatoes: picking	945 tons	1 ton	945	25	38
	Almonds; knocking ††	120 tons	225 pounds	1,067	25	43

(Table continued on next page)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
August (cont'd)	Almonds; hulling by hand	120 tons	65 pounds	3,693	25	148
	Citrus, lemons: picking	11,310 field boxes	10 boxes	1,131	24	48
	oranges: picking	197,670 field boxes	50 boxes	3,954	24	165
	grapefruit: picking	43,200 field boxes	90 boxes	480	24	20
	Grapes: picking	75 tons	1 ton	75	12	7 (from 15th to 30th)
	Peaches cling: picking	1,203 tons	1 ton	1,203	13	93 (from 15th to 31st)
	freestone picking	518 tons	1,500 pounds in 7 hours	691 (of 7 hrs.)	25	28
	sorting and packing	518 tons	2,300 pounds	451	25	18
	Plums; picking	62 tons	1,000 pounds	124	25	5
	Totals			27,290	25	1,092 man-months
September	Alfalfa hay; mowing	14,209 acres	10 acres	711 †	26	28
	raking	14,209 acres	20 acres	356 †	26	14
	shocking	14,209 acres	2½ acres in 5 hours	4,547 (of 5 hrs.) †	26	175
	hauling and baling	10,356 tons	3 tons	2,762 †	26	107
	Alfalfa seed; threshing	925 acres	2 acres	463	12	39 (from 15th to 30th)
	Beans; bunching after cutter	635 acres	1 acre in 3 hours	635 (of 3 hrs.)	26	25
	Sugar beets; topping and loading	1,417 tons	5 tons	284	26	11
	Onions; picking up, grading and sacking	44,500 sacks	40 sacks	1,113	26	43

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
September (cont'd)	Melons, cantaloupes and Jap & melons: picking	396 tons	1 ton	396	26	16
	Persians; picking	650 tons	4 tons	163	26	7
	watermelons: picking	2,377 tons	10 tons in 5 hours	238 (of 5 hrs.)	26	9
	loading and hauling	2,377 tons	5 tons	318†	26	13
	Tomatoes: picking	2,520 tons	1 ton	2,520	26	97
	Almonds, knocking †‡	60 tons	225 pounds	533	26	21
	hulling by hand	60 tons	65 pounds	1,846	26	71
	Citrus, lemons: picking	8,091 field boxes	10 boxes	809	24	34 §§
	oranges; picking	209,550 field boxes	50 boxes	5,391	24	225
	Grapes; picking	440 tons	1 ton	440	26	17
	Peaches, cling; picking	1,470 tons	1 ton	1,470	20	74 (from 1st to 20th)
	freestone: picking	311 tons	1,500 pounds in 7 hours	415 (of 7 hrs.)	26	16
	sorting and packing	311 tons	2,300 pounds	271	26	11
	Prunes: picking up	3,261 tons	1,250 pounds	5,218	20	261 (from 10th to 30th)
	dipping and drying	3,261 tons	1½ tons green wt. ¶¶	2,174	20	109 (from 10th to 30th)
	Walnuts: harvesting and hulling by hand	1,137 tons	200 pounds	11,370	26	438
	Totals			44,443	26	1,710 man-months
October	Alfalfa hay: mowing	14,209 acres	10 acres	711†	25	29
	raking	14,209 acres	20 acres	356†	25	15

(Table continued on next page)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
October (cont'd)	Alfalfa hay: shocking	14,209 acres	2½ acres in 5 hours	4,547 (of 5 hrs.)†	25	182
	hauling and baling	8,630 tons	3 tons	2,100†	25	84
	Alfalfa seed; threshing	925 acres	2 acres per man-day	463	12	39 (from 1st to 15th)
	Beans: bunching with forks after cutter	635 acres	1 acre in 3 hours	635 (of 3 hrs.)	25	26
	threshing all crop	15,700 sacks	20 sacks	471 †	25	19
	Onions; picking up, grading and sacking	22,250 sacks	40 sacks	556	25	23
	Sugar beets for seed; hoeing	205 acres	0.33 acre	615	12	51 (from 15th to 31st)
	Melons, Persians: picking	650 tons	4 tons	163	25	7
	watermelons: picking	340 tons	10 tons in 5 hours	34 (of 5 hrs.)	12	3 (for 12 days)
	loading and hauling	340 tons	5 tons	46 †	12	4 (for 12 days)
	Tomatoes: picking	1,890 tons	1 ton	1,890	25	76
	Citrus, lemons: picking	30,015 field boxes	13 boxes	2,309	24	97
	oranges: picking	263,560 field boxes	50 boxes	5,271	24	220
	Grapes: picking	734 tons	1 ton	734	25	30
	Peaches, freestone: picking	104 tons	1,500 pounds in 7 hours	139 (of 7 hrs.)	13	11 (from 1st to 15th)
	sorting and packing	104 tons	2,300 pounds	91	13	7 (from 1st to 15th)

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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
October (cont'd)	Prunes: picking up (green weight)	2,174 tons	1,250 pounds	3,479	15	232 (from 1st to 15th)
	dipping and drying	2,174 tons	1½ tons green weight ¶¶	1,450	15	97 (from 1st to 15th)
	Walnuts: harvesting and hulling by hand	1,137 tons	200 pounds	11,370	25	455
	Totals			37,430	25	1,498 man-months
November	Potatoes: picking up and sacking	25,784 sacks	70 sacks	369	25	15
	grading	25,784 sacks	100 sacks	258	25	11
	Sugar beets for seed: hoeing	205 acres	0.33 acre	615	12	51 (from 1st to 15th)
	Tomatoes: picking	945 tons	1 ton	945	12	79 (from 1st to 15th)
	Apricots: pruning	1,474 acres	0.2 acre	3,685 †	25	148
	Citrus, lemons: picking	123,650 field boxes	13 boxes	9,512	23	414
	oranges: picking	71,880 field boxes	50 boxes	1,438	23	63 §§
	Grapes: picking	220 tons	1 ton	220	12	19 (from 1st to 15th)
	Olives: picking	88 tons	300 pounds	587	25	23
	Peaches, freestone: pruning	173 acres	0.33 acre	260 †	12	22 (from 15th to 30th)
	Totals			17,889	25	716 man-months
December	Potatoes: picking up and sacking	25,784 sacks	70 sacks	369	24	16
	grading	25,784 sacks	100 sacks	258	24	11

(Table continued on next page)

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers
December (cont'd)	Spinach: hoeing	250 acres	0.6 acre	416	24	18
	first cutting	50 tons	1,000 pounds in 6 hours	100 (of 6 hrs.)	4	25 (for 4 days)
	Apricots; pruning	1,474 acres	0.2 acre	3,685†	24	154
	Citrus, lemons: picking	162,140 field boxes	16 boxes	10,134	24	423
	oranges: picking	251,580 field boxes	60 boxes	4,193	24	175
	Grapes; pruning	300 acres	0.75 acre	400	12	34 (from 15th to 31st)
	Olives: picking	88 tons	300 pounds	587	24	25
	Peaches, freestone: pruning	346 acres	0.33 acre	519†	24	22
	Totals			20,661	24	861 man-months

* Monthly basis unless otherwise noted.

† Estimated portion of work done by seasonal laborers.

‡ Strawberry picking may require 60 to 90 pickers continuously during March, April, and May.

§ Thinning varies greatly, and may be omitted entirely when set of fruit is light. Figures are for normal set of fruit.

¶ Peak orange shipments in Riverside County are about 28,500 packed boxes (equalling about 48,500 field boxes) per day. This would require about 810 pickers.

|| Youngberry picking may require 4 pickers per acre at the peak of production.

** Cherry picking during peak on heavy crop may require more workers than indicated for a short period.

†† Data on apricot drying from University of California Agr. Exp. Sta. Bul. 388.

‡‡ Figures based on a normal production of about 200 tons of almonds -- 1935 crop was very light.

§§ Citrus pickers during the lightest picking season are more or less "steady" employees although they may work on a day or piece work basis.

¶¶ Data on prune drying from University of California Agr. Exp. Sta. Bul. 388.

TABLE 4

Summary of Seasonal Labor Needs by Months
Western Riverside County, excluding Coachella and Palo Verde Valleys

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	28,217	21	1,344
February	25,612	23	1,114
March	24,691	25	988
April	38,898	25	1,556
May	42,235	26	1,625
June	37,608	26	1,447
July	124,124	26	4,774
August	27,290	25	1,092
September	44,443	26	1,710
October	37,430	25	1,498
November	17,889	25	716
December	20,661	24	861
Total	468,948	--	18,719

Riverside County -- Coachella Valley

Brief Description of the Area.-- Coachella Valley is located in the south-central part of Riverside County in southern California. It extends in a southeasterly direction about 60 miles from San Gorgonio Pass to the Salton Sea, and is hemmed in by mountains on the north, east and west and the Salton Sea on the south. Of the total area in the valley, only a small portion is farmed. This consists of land reclaimed from the desert, and irrigated by water pumped from deep wells. It covers a district about 20 miles in length, and 3 or 4 miles in width, contiguous to the towns of Indio, Coachella, Thermal, and Mecca, located in the southern end of the valley, a short distance north of Salton Sea. In some places the farms are scattered, and separated by areas of unreclaimed desert. The topography is quite flat, with a gentle slope to the south and east. The lands are mostly below sea level, and range in elevation from a few feet above to about 200 feet below. Rainfall is light and so uncertain that no dependence is placed upon it, irrigation being relied upon entirely for all crops. The summers are very hot and dry, and the winters mild with little frost. A considerable part of the area is used for the more tender truck crops such as string beans, tomatoes, squash, etc., which, owing to the mild winter climate can be matured here when few other districts can compete in the market.

Figures from the Agricultural Commissioner at Riverside indicate the following acreages for the 1935 season:

	Acreage
Field crops	3,135
Vegetable crops	3,297
Orchard and vineyard bearing	4,724
Orchard and vineyard nonbearing	3,087
Total	14,243

A variety of soils is represented, belonging to four different series. The predominating soil textures are sand, fine sand, and loam, although some large areas of clays occur, especially in the lower or southern end of the valley. Crops are grown principally on the lighter types. The soils are generally 6 feet or more in depth.

Crops, Acreages, and Production.-- The basis used in calculating occasional or seasonal need for labor in addition to that furnished by farm operators and regularly employed workers appears as table 1.

TABLE 1

Basis * for Calculating Seasonal Labor Requirements -- Coachella Valley

Crops	Acreage	Production
Field crops:		
Cotton	1,650	1,700 bales = 2,380,000 pounds seed cotton 1,215 tons seed
Hay, alfalfa, (90 per cent baled)	900	4,950
Onions †	440 †	108,000 sacks, average 50 pounds
Potatoes (sweet)	145	9,660 sacks, average 100 pounds
Vegetable crops:		
Beans (green)	spring 207 fall 650	Spring 217 tons) Fall 684 tons) 901 tons
Carrots	250	50,700 crates
Cantaloupes ‡	308 ‡	616 tons
Corn (green)	507	73,515 lugs of 3 dozen ears
Lettuce (none in 1936)	300	17,280 crates
Peas	400	200 tons
Tomatoes	409	2,903 tons
Vegetables (other)	266	--
Fruit crops:		
Citrus, grapefruit; bearing	1,767	341 cars = 157,542 packed boxes = 262,570 field boxes
nonbearing	675	--
tangerine; bearing	94	15 cars = 6,930 packed boxes = 554,400 pounds
nonbearing	57	--
Valencias; nonbearing	96	--
Dates; bearing	1,215	6,407,426 pounds
nonbearing	1,660	--
Figs; bearing	15	11 tons
nonbearing	10	--
Grapes--Thompson; bearing	1,179	1,130½ tons
nonbearing	589	--
Malaga; bearing	454	589 tons

* Acreage and production figures for 1935 furnished by office of A. E. Bottel, Agricultural Commissioner, Riverside County.

† Onion acreage ranges from 400 to 800 acres in different years.

‡ Cantaloupe acreage is usually 150 acres or less.

Operations Requiring Use of Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal or occasional labor for the various crops raised in the Coachella Valley of Riverside County, are indicated in table 2. This tabulation does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops
Coachella Valley

Crop	Operation	Time of need
Field crops:		
Cotton	Chopping	May
	Picking	Aug.--15 per cent of crop Sept.--20 per cent of crop Oct.--20 per cent of crop Nov.--20 per cent of crop Dec.--15 per cent of crop Jan.--5 per cent of crop Feb.--5 per cent of crop
Hay, alfalfa	Baling (90 per cent of tonnage) (66 per cent by seasonal labor)	Mar.--15-31 4 per cent of tonnage baled Apr. to Nov., inclusive--12 per cent of tonnage each month
Onions, (Bermuda)	Planting in field	Oct. 25-31--5 per cent of acreage Nov. 1-30--75 per cent of acreage Dec. 1-15--20 per cent of acreage
	Weeding (twice)	February--all acreage March--all acreage
Potatoes (sweet).	Use of seasonal labor inconsequential and hence ignored.	
Vegetable crops:		
Beans, green (spring crop)	Hoeing	March--all acreage
	Staking	March--all acreage
	Picking	April 20-30--25 per cent of crop May 1-31--75 per cent of crop
Beans, green (fall crop)	Staking	October--all acreage
	Picking	Nov. 1-30--50 per cent of crop Dec. 1-15--50 per cent of crop
Carrots	Wheel hoeing (once)	October--all acreage
	Weeding (once)	Oct. 15-31--all acreage
	Pulling, tying in bunches and putting in field crates	Feb.--28 per cent of crop Mar.--42 per cent of crop Apr.--24 per cent of crop (balance scattered and inconsequential)

(Table continued on next page)

Table 2 continued.

Crop	Operation	Time of need
Vegetable crops (cont'd)		
Cantaloupes	Picking	June—60 per cent of crop July—40 per cent of crop
Corn (green) (Seasonal labor only on larger acreages, about 50 per cent of acreage)	Thinning and hoeing	March
	Suckering (twice)	March--all acreage April—all acreage
	Dusting	April
	Picking (20 per cent by seasonal labor)	May
Lettuce -- District apparently discontinuing production -- use of seasonal labor inconsequential and hence ignored.		
Peas	Picking	Nov.--25 per cent of crop Dec.—35 per cent of crop Jan.—30 per cent of crop Feb.--10 per cent of crop March
Tomatoes	Setting sloping stakes and attaching wire paper for weather protection	December--all acreage
	Hoeing (twice)	January—all acreage March--all acreage
	Remove paper, pull up stakes and wire and set in vertical position	February--all acreage
	Pruning (3 times)	February, March--on 50 per cent of acreage each month
	Tying (3 or 4 times)	March, April—two times in all acreage
	Picking (50 per cent by seasonal labor)	April--6 per cent of crop May—45 per cent of crop June--47 per cent of crop (balance scattered and inconsequential)
Orchard crops:		
Grapefruit	Pruning (50 per cent of acreage)	Dec., Jan., Feb., Mar.—25 per cent each month
	Picking	Nov.--20 per cent of crop Dec.—20 per cent of crop Jan.—20 per cent of crop Feb.—20 per cent of crop Mar.—20 per cent of crop

(Table continued on next page)

Table 2 continued.

Crop	Operation	Time of need
Vegetable crops (cont'd)		
Tangerines	Picking(50 per cent by seasonal labor)	Nov. 20-30--25 per cent of crop Dec. 1-31--75 per cent of crop
Dates	Pollinating (50 per cent by seasonal labor)	Feb. 15-28—25 per cent of job Mar. 1-31—50 per cent of job Apr. 1-15—25 per cent of job
	Picking	Sept. 15-31—20 per cent of crop Oct.—40 per cent of crop Nov.--30 per cent of crop Dec. 1-15—10 per cent of crop
Figs -- Use of seasonal labor inconsequential and hence ignored.		
Grapes	Pruning	Dec., Jan., Feb.—one-third of acreage each month
	Picking	June--all Thompson Seedless July—all Malagas — 8 days

TABLE 3

Seasonal Labor Needs -- Coachella Valley -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
January	Cotton: Picking	119,000 pounds	200 pounds	595	25	24
	Carrots: Harvesting sometimes starts about the 15th					
	Peas: Picking	60 tons	200 pounds	600	25	24
	Tomatoes: Hoeing	409 acres	0.25 acre	1,636	25	66
	Grapefruit: Pruning	220 acres	0.5 acre	440	25	18
	Picking	52,514 boxes	100 boxes	526	25	21
	Grapes: Pruning	544 acres	0.5 acre	1,088	25	44
	Totals			4,885	25	196 man-months
February	Cotton: Picking	119,000 pounds	200 pounds	595	25	24
	Onions: Weeding	440 acres	0.3 acre	1,320	25	53
	Carrots: Pulling, tying in bunches and putting in crates	14,196 crates	10 crates	1,420	25	57
	Peas: Picking	20 tons	200 pounds	200	25	8
	Tomatoes: Remove paper protection and set stakes vertically	400 acres	0.1 acre	4,000	25	160
	Pruning	600 acres	0.5 acre	1,200	25	48
	Grapefruit: Pruning	220 acres	0.5 acre	440	25	18
	Picking	52,514 boxes	100 field boxes	526	25	21
	Dates: Pollinating	1,215 acres	†	303	13	24 (from 15th to 28th)
	Grapes: Pruning	544 acres	0.5 acre	1,088	25	44
	Totals			11,092	25	444 man-months
March	Alfalfa: Baling	178 tons	5 tons	24 ‡	8	3
	Onions: Weeding	440 acres	0.5 acre	880	26	34
	Beans (string): Hoeing	207 acres	1 acre	207	26	8
	Staking	207 acres	0.2 acre	1,035	26	39

(Table continued on next page.)

Table continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers *
March (cont'd)	Carrots: Pulling, tying in bunches and putting in crates	21,298 crates	10 crates	2,130	26	82
	Corn: Thinning and hoeing	507 acres	1 acre	250 ‡	26	10
	Suckering	507 acres	1 acre	250	26	10
	Tomatoes: Pruning	600 acres	0.5 acre	1,200	26	45
	Tying (two times)	800 acres	10 man-days per acre	8,000	26	308
	Grapefruit: Picking	52,514 boxes	100 field boxes	526	26	21
	Pruning	220 acres	0.5 acre	440	26	17
	Dates: Pollinating	1,215 acres	-- †	608	26	25
	Totals			15,550	26	598 man-months
April	Alfalfa (hay): Baling	535 tons	5 tons	72 ‡	26	3
	Onions: Harvesting	21,600 sacks of 50 pounds	25 sacks	864	6	144 (from 25th to 31st)
	Beans (string): Picking 25 per cent of spring crop	54 tons	200 pounds	540	6	90 (from 25th to 30th)
	Carrots: Pulling, tying in bunches, and putting in crates	12,168 crates	10 crates	1,217	26	47
	Corn: Suckering (all acreage)	507 acres	1 acre	250 ‡	26	10
	Dusting (all acreage) by hand	507 acres	1 acre	250 ‡	26	10
	Tomatoes: Tying	800 acres	20 man-days per acre	16,000	26	616
	Picking	174 tons	600 pounds	290 ‡	26	12
	Dates: Pollinating	1,215 acres	†	303	13	24 (from 1st to 15th)
	Totals			19,786	26	761 man-months
May	Cotton: Chopping	1,650 acres	2.0 acres	825	26	32
	Alfalfa (hay): Baling	535 tons	5 tons	72 ‡	26	3
	Cantaloupes (sometimes a few picked after the 15th)					

(Table continued on next page.)

Table continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
May (cont'd)	Onions: Harvesting	86,400 sacks of 50 pounds	25 sacks	3,456	26	133
	Beans (string): Picking	163 tons	200 pounds	1,630	26	63
	Corn (green): Picking	73,515 lugs	75 lugs	196‡	26	8
	Tomatoes: Picking	1,306 tons	600 pounds	2,180‡	26	84
	Totals			8,359	26	322 man-months
June	Alfalfa (hay): Baling	535 tons	5 tons	72‡	26	3
	Cantaloupes: Picking	370 tons	1 ton	370	26	15
	Tomatoes: Picking	1,364 tons	600 pounds	2,274‡	26	88
	Grapes: Picking and packing (all Thompson)	1,130½ tons	1,000 pounds	2,261	26	87
	Totals			4,977	26	192 man-months
July	Alfalfa (hay): Baling	535 tons	5 tons	72‡	26	3
	Cantaloupes: Picking	246 tons	1 ton	246	10	25 (from 1st to 10th)
	Grapes: Picking (Malagas)	589 tons	1,000 pounds	1,178	8	183
	Totals			1,496	26	58 man-months
August	Cotton: Picking	357,000 pounds	250 pounds	1,428	18	80 (from 7th to 31st)
	Alfalfa (hay): Baling	535 tons	5 tons	72‡	26	3
	Totals			1,500	26	58 man-months
September	Cotton: Picking	476,000 pounds	250 pounds	1,904	26	74
	Alfalfa (hay): Baling	535 tons	5 tons	72‡	26	3
	Dates: Picking	1,922,220 pounds	330 pounds	5,825	13	448 (from 15th to 31st)
	Totals			7,801	26	300 man-months
October	Cotton: Picking	476,000 pounds	250 pounds	1,904	26	74
	Alfalfa (hay): Baling	535 tons	5 tons	72‡	26	3
	Onions: Planting	22 acres	0.14 acre	154	6	26 (from 25th to 31st)
	Beans (green): Staking (fall crop)	650 acres	0.2 acre	3,250	26	125
	Carrots: Wheel hoeing	250 acres	0.25 acre	1,000	13	77 (from 1st to 15th)
	Weeding:	250 acres	1 acre	250	13	20 (from 15th to 31st)

(Table continued on next page.)

Table continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number or workers*
October (cont'd)	Dates: Picking	3,844,440 pounds	330 pounds	11,650	26	448
	Totals			18,280	26	703 man-months
November	Cotton: Picking	476,000 pounds	225 pounds	2,116	26	82
	Alfalfa (hay): Baling	535 tons	5 tons	72‡	26	3
	Onions: Planting in field	330 acres	0.14 acre	2,310	26	89
	Beans (string): Picking	342 tons	250 pounds	2,736	26	106
	Peas: Picking	50 tons	200 pounds	500	26	20
	Grapefruit: Picking	52,514 boxes	100 field boxes	526	26	21
	Tangerines: Picking	138,600 pounds	1,500 pounds	47‡	10	5 (from 20th to 30th)
	Dates: Picking	1,922,229 pounds	330 pounds	5,825	26	224
	Totals			14,132	26	544 man-months
December	Cotton: Picking	357,000 pounds	200 pounds	1,785	25	72
	Onions: Planting	88 acres	0.14 acre	616	13	48 (from 1st to 15th)
	Beans: Picking	342 tons	250 pounds	2,736	13	211 (from 1st to 15th)
	Peas: Picking	70 tons	200 pounds	700	25	28 ¶
	Tomatoes: Set sloping stakes and paper weather protection	409 acres	0.2 acre	2,045	13	158
	Grapefruit: Picking	52,514 boxes	100 field boxes	526	25	21
	Pruning	220 acres	0.5 acre	440	25	18
	Tangerines: Picking	415,800 pounds	1,500 pounds	139‡	25	6
	Dates: Picking	640,743 pounds	330 pounds	1,942	13	150 (from 1st to 15th)
	Grapes: Pruning	544 acres	0.5 acre	1,088	25	44
	Totals			12,017	25	481 man-months

*On a monthly basis unless noted.

†Date pollinating requires about 2 man-days per acre for the season February 15 to April 15, of which about 50 per cent is done by seasonal workers.

‡Estimated portion of job done by seasonal workers.

¶During peak of pea harvest, at least one picker per acre is needed.

TABLE 4

Summary of Seasonal Labor Needs by Months
Coachella Valley

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	4,885	25	196
February	11,092	25	444
March	15,550	26	598
April	19,786	26	761
May	8,359	26	322
June	4,977	26	192
July	1,496	26	58
August	1,500	26	58
September	7,801	26	300
October	18,280	26	703
November	14,132	26	544
December	12,017	25	481
Total	119,875	--	4,657

It will be noticed from table 4, that the need for seasonal labor is small in Coachella Valley during the hot summer months from June to September. But after about September 15, however, the demand increases rapidly due largely to date harvest, and work on fall vegetable plantings and cotton picking. This continues to about the end of the year. January is somewhat slack, as fall harvests are mostly finished, but the need for labor increases again rapidly as work on spring crops develop, reaching a peak along in April or May with the harvest of onions, string beans, carrots, and work on tomatoes.

Seasonal Labor Needs for California Crops

Riverside County -- Palo Verde Valley

Brief Description of the Area.-- Palo Verde Valley consists of 88,693 acres of partly reclaimed bottom lands along the west side of the Colorado River and is situated in the extreme eastern corner of the county. All the cropped land requires irrigation, in that the average annual rainfall is only about 4 inches. Of the total acreage in the valley about 25,000 was cropped in 1935, the crops consisting principally of cotton, alfalfa (hay and seed), wheat, and grain sorghums. A little barley was grown, a considerable acreage of sudan grass for seed, and about 200 acres are in pecans of several years' growth. The agricultural areas are contiguous to the towns of Blythe, Neighbors, and Ripley.

The soils of the valley are varied, and range from sand to clay. The different textures are scattered in relatively small patches generally over the whole district.

Crops, Acreages, and Production.-- The basis used in calculating occasional or seasonal need for labor in addition to that furnished by farm operators and regularly employed workers appears as table 1.

TABLE 1

Basis for Calculating Seasonal Labor Requirements -- Palo Verde Valley

Crops	Acreage *	Production *
Field crops:		
Alfalfa for hay only	5,500	22,000 tons hay
hay and seed	3,300	4,400 tons hay
		355.57 tons seed
Cotton, 1935	8,095	5,823 bales
		2,599 tons seed
Flax	200	4,000 bushels
Grain, wheat and barley	2,389	1,622 tons
Sorghums	2,971	2,317.38 tons
Sudan grass for seed	1,653	495 tons seed
Vegetable crops:		
Melons, Honeydew	30	3,360 crates
Lettuce, bearing	80	3,600 crates, Dec., 1935
nonbearing	224	for 1936 harvest
Orchard crops:		
Pecans, bearing	160	30,000 pounds
nonbearing	40	--

* Acreage and production from office of A. E. Bottel, Agricultural Commissioner, Riverside County.

Operations Requiring Use of Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal or occasional labor for the various crops raised in the Palo Verde Valley are indicated in table 2. This tabulation does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops -- Palo Verde Valley

Crops	Operation	Time of need
Field crops:		
Alfalfa (hay)	Baling (80 per cent of crop) (60 per cent by seasonal labor)	Mar.--10 per cent of tonnage baled Apr.--20 per cent of tonnage baled May — 20 per cent of tonnage baled June —20 per cent of tonnage baled July —10 per cent of tonnage baled Aug.--10 per cent of tonnage baled Sept.—10 per cent of tonnage baled
	Threshing for seed (80 per cent by seasonal labor)	Aug.--one-third of crop) Sept.—one-third of crop) Oct.— one-third of crop)
Cotton	Chopping	May —50 per cent of acreage June —50 per cent of acreage
	Hoeing	June —50 per cent of acreage July—50 per cent of acreage
	Picking	Sept.--10 per cent of crop Oct.— 30 per cent of crop Nov.— 40 per cent of crop Dec.— 15 per cent of crop Jan.— 5 per cent of crop
Flax	(Use of seasonal labor inconsequential and hence ignored)	
Grain (wheat and barley)	Threshing (80 per cent by seasonal labor)	May—50 per cent of crop June —50 per cent of crop
Sorghums	Cutting off heads by hand and throwing in piles	Oct.— 40 per cent of acreage Nov.—60 per cent of acreage
	Threshing (80 per cent by seasonal labor)	Oct.—20 per cent of crop Nov.— 40 per cent of crop Dec.—40 per cent of crop

(Table continued on next page)

Table 2 continued.

Crops	Operation	Time of need
Sudan grass for seed	(District discontinuing production, hence ignored.)	
Vegetable crops:		
Lettuce	Thinning	Oct.—170 acres Dec.—130 acres
	Hoeing	Nov.—170 acres Feb.—130 acres
	Cutting (early crop)	Dec. 13-31—2,000 crates Jan. 1-31—10,000 crates
	(late crop)	Mar. 1-25—5,500 crates
Melons, honeydew*	Hoeing and thinning	August—all acreage
	Hoeing	August—all acreage
	Hoeing and turning vines	August—all acreage
	Picking	Oct. 23-31—50 per cent of crop Nov. 1-8—50 per cent of crop
Orchard crops:		
Pecan nuts	(Use of seasonal labor inconsequential, hence ignored.)	

* About 200 acres melons have been planted for harvest in June and July, 1936.

TABLE 3

Seasonal Labor Needs -- Palo Verde Valley -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number or workers
January	Cotton: Picking	407,610 pounds	200 pounds	2,038	25	82
	Lettuce: Cutting	10,000 crates	33 crates (in 5 hours)	300 (of 5 hours)	20	15 (for 20 days)
	Totals			2,338	25	94 man-months
February	Lettuce: Hoeing	130 acres	1 acre	130	9	15 (for 9 days)
	Totals			130	25	6 man-months
March	Alfalfa: Baling	2,112 tons	3 tons (in 6 hours)	422 of (6 hours)*	13	33 (from 15th to 31st)
	Lettuce: Cutting	5,500 crates	33 crates (in 5 hours)	167 (of 5 hours)	12	15 (from 1st to 25th)
	Totals			589	26	23 man-months
April	Alfalfa: Baling	4,224 tons	3 tons (in 6 hours)	844 (of 6 hours)*	26	33
	Totals			844	26	33 man-months
May	Alfalfa: Baling	4,224 tons	3 tons (in 6 hours)	844 (of 6 hours)*	26	33
	Cotton: Chopping	4,050 acres	2.5 acres	1,620	26	63
	Grain: Threshing (by stationary machine)	811 tons	1.5 tons (in 12 hours)	433 (of 12 hours)*	26	17
	Totals			2,897	26	112 man-months
June	Alfalfa: Baling	4,224 tons	3 tons (in 6 hours)	844 (of 6 hours)*	26	33
	Cotton: Chopping	4,045 acres	2.5 acres	1,620	26	63
	Hoeing	4,045 acres	4 acres	1,011	26	39
	Grain: Threshing	811 tons	1.5 ton (in 12 hours)	433 (of 12 hours)*	26	17
	Totals			3,908	26	151 man-months
July	Alfalfa: Baling	2,112 tons	3 tons (in 6 hours)	422 (of 6 hours)*	26	16

(Table continued on next page.)

Table continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers
July (cont'd)	Cotton: Hoeing	4,050 acres	4 acres	1,012	26	39
	Totals			1,434	26	56 man-months
August	Melons (honeydew):					
	Hoeing and thinning	30 acres	1 acre	30	2	15 (for 2 days)
	Hoeing	30 acres	1 acre	30	2	15 (for 2 days)
	Hoeing and turning vines	30 acres	4 acres	8	1	8 (for 1 day)
	Alfalfa: Baling	2,112 tons	3 tons (in 6 hours)	422 (of 6 hours)*	26	16
	Threshing	118 tons	900 pounds (in 12 hours)	211 (of 12 hours)*	26	9
	Totals			701	26	27 man-months
September	Alfalfa: Baling	2,112 tons	3 tons (in 6 hours)	422 (of 6 hours)*	26	10
	Threshing	118 tons	900 pounds (in 12 hours)	211 (of 12 hours)*	26	9
	Cotton: Picking	815,220 pounds	250 pounds	3,261	26	126
	Totals			3,894	26	150 man-months
October	Alfalfa: Threshing	118 tons	900 pounds (in 12 hours)	211 (of 12 hours)*	26	9
	Cotton: Picking	2,445,660 pounds	250 pounds	9,783	26	377
	Sorghums: Cutting off heads by hand	1,200 acres	1 acre	1,200	26	47
	Threshing	463 tons	2 tons	185*	26	8
	Lettuce: Thinning	170 acres	0.5 acre	340	23	15 (for 23 days)
	Melons: Picking	1,680 crates	45 crates	38	8	5 (from 23rd to 31st)
	Totals			11,757	26	452 man-months
November	Cotton: Picking	3,260,880 pounds	225 pounds	14,493	25	580 †
	Sorghums: Cutting off heads by hand	1,571 acres	1 acre	1,571	25	63
	Threshing	927 tons	2 tons	370*	25	15
	Lettuce: Hoeing, and removing "doubles"	170 acres	0.75 acre	227	15	15 (for 15 days)

(Table continued on next page.)

Table continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers
November (cont'd)	Melons: Picking ‡	1,680 crates	45 crates	38	8	5 (from 1st to 8th)
	Totals			16,699	26	642 man-months
December	Cotton: Picking	1,222,830 pounds	200 pounds	6,114	25	245
	Sorghums: Threshing	927 tons	2 tons	370*	25	15
	Lettuce: Thinning	130 acres	0.5 acre	260	17	15 (for 17 days)
	Cutting	2,000 crates	33 crates (in 5 hours)	60 (of 5 hours)	4	15 (for 4 days)
	Totals			6,804	26	262 man-months

*Estimated portion of job done by seasonal workers.

†At peak of cotton picking, the maximum output of gins was about 100 bales per day. This would indicate from 625 to 700 pickers.

‡Melons seldom picked this late. Experimental in 1935.

Table continued

Month	Crop and task	Size of task	Output per man-hour	Required man-days	Available days	Required number of workers
November (cont'd)	Melons: Picking †	1,680 crates	45 crates	36	8	4 (from Jan to 8th)
	Totals			16,889	26	642 man-months
December	Cotton: Picking	1,224,650 pounds	200 pounds	6,114	26	245
	Sorghums: Threshing	927 tons	2 tons	370*	26	15
	Lettuce: Thinning	130 acres	0.5 acre	260	17	15 (for 17 days)
	Cutting	2,000 crates	32 crates (in 5 hours)	60 (for 5 hours)	4	15 (for 4 days)
	Totals			6,804	26	282 man-months

*Estimated portion of job done by seasonal workers.

†At peak of cotton picking, the maximum output of gins was about 100 bales per day. This would indicate from 625 to 700 pickers.

†Melons seldom picked this late. Experimental in 1935.

TABLE 4

Summary of Seasonal Labor Needs by Months
Palo Verde Valley

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	2,338	25	94
February	130	25	6
March	589	26	23
April	844	26	33
May	2,897	26	112
June	3,908	26	151
July	1,434	26	56
August	701	25	27
September	3,894	26	150
October	11,757	26	452
November	16,699	25	642
December	6,804	25	262
Totals	51,995	—	2,008

TABLE 4

Summary of Seasonal Labor Needs by Months
Palo Verde Valley

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	2,538	25	94
February	130	25	6
March	589	25	23
April	864	25	35
May	2,897	25	112
June	3,908	25	151
July	1,454	25	56
August	701	25	27
September	3,894	25	150
October	11,757	25	452
November	16,899	25	642
December	6,804	25	262
Totals	51,295	—	2,008